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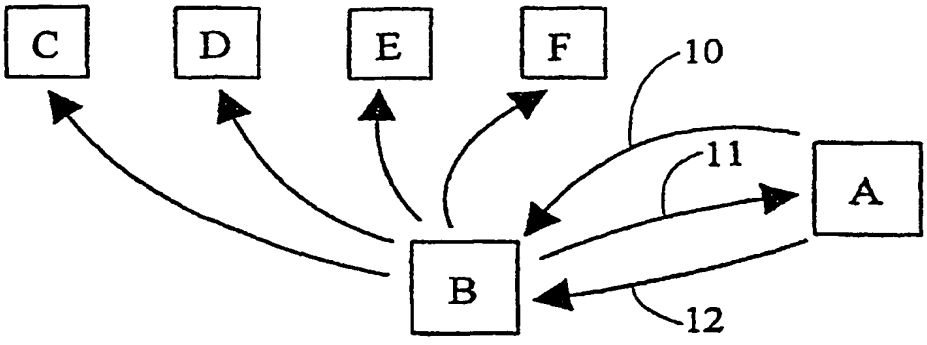
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR ACQUIRING A COVER FOR A MOBILE PHONE THROUGH THE INTERNET



(57) Abstract: A method for acquiring a mobile phone cover, through the Internet. The customer himself (A) contacts the Internet program of the manufacturer (B) of mobile phone covers and designs the appearance, colours, logos, texts of the cover etc. on his data terminal. Then the customer transmits the data (12) concerning the appearance of the cover he has designed to the manufacturer's file, i.e. order service. The cover manufacturer's program chooses the suitable manufacturing method and the steps (C, D, E, F) for achieving the appearance of the cover, and sends the finished cover the customer has designed to the latter for example by cash on delivery.

WO 01/24072 A1

Method for acquiring a cover for a mobile phone through the Internet

The present invention relates to a method for acquiring a cover for a mobile phone, through the Internet.

Nowadays, mobile phone stores offer a large selection of various covers of different colours, with different logos and advertisements, from which the owner of a mobile phone can choose the one that most appeals to him. Anyhow, this is not enough if the owner wants a cover of a certain colour, perhaps with his own name or even with his own photograph.

The object of the present invention is to provide a method that enables all this.

The method of the present invention is characterised in that the customer himself gets into contact with the Internet program of the manufacturer of mobile phone covers and designs the appearance, colours, logos, pictures, texts etc. of the cover on his data terminal, then transmits the data concerning the cover appearance he has designed to the cover manufacturer's file, i.e. order service, the cover manufacturer's program chooses the suitable production method and process steps for achieving the appearance of the cover, and sends the customer the completed cover designed by the latter, by cash on delivery, for example.

The method is based on the simple solution that the program devised for digital control of predetermined work processes can be used also for designing e.g. the surface of a mobile phone cover, with the design performed by the customer.

This means that all the production steps can be created digitally, i.e. a digital signal can be converted under control into the desired end product.

Using a processor and a program, a picture or a name, for example, can be transformed into DC, a pulse, or the pneumatics can be controlled so that the picture created by the customer can be carried out on the mobile phone cover by applying spray coating, by laser or laser-printer when the cover has been appropriately fitted at the "work place", i.e. the 0-point of the product tallies with the 0-point of the digital file in the xyz-coordinate system.

Consequently, the method is totally novel: the customer/user gets into contact with the manufacturer's file i.e. web site through the Internet on his own PC.

On the web site, the customer gets free access to a program that enables him to design mobile phone covers in digital form on his own computer.

When the customer has made a design that he accepts, using the program, i.e. the cover corresponds to his intentions, he returns the picture to the manufacturer's file, and then the manufacture can start immediately.

The program created for this method is compatible both in terms of production and design, and what is more, both the customer's design work and the control of the production are performed using one single program (see fig. 1), where data is transmitted in digital form between the customer and the manufacturer through the Internet.

The program has been devised so as to allow the design of such products alone that can be manufactured, in other words, it has been decided in advance which product is to be manufactured, from which material and in which way, i.e. the production process. Thus, the program allows the design of such products alone that can be manufactured in the production process.

Since all the operations are performed in digital form, the design, the transmission from the Internet, i.e. of the program and the completed design work, and the production, i.e. control of the production, and the finished product, all correspond by 100 per cent to the order the customer has made.

Those production techniques that enable free patterns (coating) are characterised in that the xyz-0-point in the program and the xyz-0-point in the production are identical. As a result of this, the file (picture) created in digital form and its location on the cover of the mobile phone will always be identical.

In production, the xyz-0-point is carried out so that the working plane having at least 3, usually 5 axes, its jig, the clamping device, in which the cover can be fitted with high precision only in one way, is reset to zero so that it tallies with the program.

The positioning can also be performed using a CCD-camera, laser etc., however, this may be an unnecessary operation, since there is a limited number of different covers, e.g. 5 pieces.

Even if there were e.g. 5 different models, it would still be possible to use the same workstations, because the covers can be clamped automatically to a jig, jigs being provided e.g. one for each cover model at the workstation.

Another possibility is to attach the jig to the cover so that the jig follows the cover through all the workstations until the product is finished.

In that case the clamping member of the jig will always be the same, i.e. compatible with all the workstations, although the fastening of the cover is model-specific.

The basic feature of the program is that it is provided in advance with 3d surface geometry and 2d view/cover model (see fig. 3). E.g. Nokia models 3210, 5110, 6110, 6150, 8110 and 9110 are totally different in shape, size and construction.

The program thus includes specific 3d- and 2d-files for each model. In other words, the program contains only the files of these models, e.g. of the models mentioned above and of no other models, i.e. the program cannot be used for coating other models than those created in the file.

The program functions so that the customer places or creates the picture (text) he desires on the 2d surface of the model he has chosen, e.g. Nokia 5110.

At the same time as the customer creates the desired surface on the 2d-surface and enters approval of the operations, the same operation (picture) appears automatically at an identical location on the 3d surface model as on the 2d surface, or vice versa, first 3d and then 2d.

Like all 3d surface files, this file can also be rotated in all directions, and automatic rotation etc. can be requested. Even if the design of the geometry of the model would already be done, the colour, metal etc. can still be changed.

The entire program has been devised to operate with the restrictions and the potential offered by the 3d and 2d geometry of the given cover models, for reasons discussed below.

The reasons for the restrictions relate to the function and the production of a mobile phone. As an example figure 2 shows a cover with the points indicated which cannot be designed by the program.

Reference 1 is the display which will receive the lens, and the frame 2 should be "clean" for the lens to adhere to it. Areas 3 and 5 may be IR transmitter and receiver

areas, 4 and 6 are transmitter and receiver areas, e.g. antenna areas 7 and button areas.

When a picture (text) is created, it will lack only the areas mentioned above, otherwise the pictures will remain intact and unaltered.

There are also some models that do not allow any metal in certain areas. All these are model-specific differences which are allowed for in the creation of the program.

This means that the program is totally free, with the restrictions and possibilities relating to the creation of a file.

The program contains also several files created in advance, such as variations of letter and number fonts, finished pictures and logos.

The program contains also a training program, examples of a completed model, instructions, etc., i.e. a complete set:

a) The program provides a possibility of designing different cover models and related manufacturing methods or of one or more combinations of these. The manufacturing methods are presented in the dependent claims of the set of claims.

b) The 3d surface geometry and surfaces of 2d pictures of mobile phone covers that can be designed have been pre-programmed in the program.

c) As the work proceeds, the program indicates the price level and the total price including transport.

d) The customer has copyright to his own design if it contains a photograph, a picture created by the customer, colour co-ordinates or the like.

The Internet as a business instrument

The Internet is turning into the most important media for business, i.e. it is used for buying, selling and demonstrating products.

In this case the example product is a mobile phone, more precisely its cover. In most branches someone makes the product and the retailer sells the product to the customer. Thus the chain is made up of a manufacturer, an importer and a retailer, who sells the products through the Internet. The manufacturer makes advertisement for the product, its properties etc. Naturally the operator wants to sell his own

product, that is a subscription. In this chain, there is no link allowing the customer to have a say over the Internet in the way the cover in question is made or designed.

One simple reason why the customer has so far had no possibilities to influence the product through the Internet is that the production has not been synchronised with digital data communication between the customer and the manufacturer.

A new interactive method has now been found, which allows customer himself to design through the Internet the product he wants to buy.

Present methods for producing mobile phone covers

The most common cover type is an injection-moulded PC/ABS plastic cover painted in one colour.

Other types are e.g. plastic covers coated by electric catalysis and vacuum evaporation.

Techniques applying a pattern (text) by tampo print or silk-screening or hand painting on the above mentioned covers are commonly used.

The production methods mentioned above cannot be digitally controlled, and we do no have knowledge of such techniques having been suggested even in theory.

So called in mould -techniques commonly use plastic, especially in products for which a picture, text or imitation of good quality is desired, e.g. in wristwatches and their wristbands made of leather imitation, etc.

The basic idea of the in mould method is the printing of any desired picture on a plastic film. The printing method used in this case is exclusively the rotation method, which is an effective and cheap means of applying the desired pattern. Other conceivable printing methods are tampo, offset and silk-screening.

When the film has been printed, it is usually deep-drawn, pressed into shape, placed in a mould, and then the moulding compound is injected into the mould. In this way the film fixed to the shell by pressing will form the outer surface and the printed pattern will be on the inner surface of the film. This is an excellent method, but the customer has no chance to influence for example the creation of a picture, not through the Internet, nor by any other means. Rotation print requires treatment of the rolls (machining, etching), and the operation cannot be directly controlled digitally.

Digital processing of pictures is known *per se* at printing plants, but it still does not allow individual processing.

In mould -technology would be usable for a digital production process, i.e. to create pictures individually with the design desired by the customer, if the picture/data was produced on the surface of a plastic film with laser printer.

The claims describe production techniques suitable for the control of digital production and for the actual production.

Some of these techniques have been known for up to 100 years, and consequently they are not essential for the invention itself.

The crucial factor in the methods is digital control, information in digital form, the result being totally dependent on the digital information. The product the customer desires can be manufactured directly by means of the digital data generated by the customer, because the production is carried out with the aid of digital data. One of the keystones of the method is high-precision control of the xyz 0-point on the object, since the customer has positioned the picture, text etc. in digital form at the location he desires. That means that he has positioned a specific picture at a specific location of the cover model he has chosen. In this case, the exact location of the cover part in the xyz plane must be known in the production. This can be carried out by two leading principles or by a combination of these.

A. At the workstation, the cover has been positioned in a plane that moves at least in the xyz plane, but preferably with 5 axes.

In this case the desired process can be carried out by specific methods so that the operator is not moving and the object moves in the xyz plane.

This means that e.g. a varnishing spray, a laser head etc. are stationary.

B. The cover is mounted at the workstation in a plane which does not move, but is an exactly fixed xyz-point. The workstation is then equipped with a robot which produces a totally free path with 5 axes.

The method according to this invention is presented below by means of an example and with reference to the drawings, wherein

figure 1 is a schematic representation of the order the customer has placed with the manufacturing company,

figure 2 is a mobile phone,

figure 3 illustrates the design process of a mobile phone cover on a data terminal, and

figure 4 is a schematic representation of the customer's order made by credit card.

Customer A contacts the company B manufacturing mobile phone covers through the Internet, as indicated with arrow 10. Customer A receives the program on his data terminal, arrow 11. The customer designs the appearance of the cover, i.e. colours, logos, pictures, texts and like, as shown in figure 3. The customer designs the pictures and text himself, or picks ready pictures to point 20, from where the pictures are transferred to the surfaces of the cover, 21. The customer may even scan his own pictures into the program. A 3d mobile phone rotates continuously at 22, which continuously shows how the patterns, text and the like will appear on a 3d mobile phone. When the design of the cover is completed, the order data are transmitted to the manufacturer B, arrow 12. Company B chooses the suitable production methods C, D, E, F and manufactures the cover as designed by the customer, and then transmits it to the customer by cash on delivery, for example. The cover can be delivered to the customer so promptly that he will receive it within three days.

The invention is not limited to the example given above, but may vary within the scope of the following claims. Consequently, the method of the invention is also suitable for products such the dials of watches, greetings printed on the surface of bottles for alcoholic beverages, giftware, etc.

Ordering a cover by credit card

In this case the customer uses his mobile phone to order the program code in question. As a result of this, the identity of the person placing the order can be certified, because the switching exchange to which the call or the text message with the code request is sent is in contact with or managed by the operator in charge of the customer's subscription.

This means that the personal data of the person ordering the code can be confirmed: his phone number, operator, creditworthiness, i.e. whether he has paid his bills, etc.

Example

The person is a subscriber of Sonera i.e. his user identification is +358 40. When he makes an order to the manufacturer's order service having the same number all over the world or in specific areas, e.g. Europe 0800-6669, he dials this number.

The subscriber's phone number, e.g. +358 50 5224555 then appears at the manufacturer's order service. The automatic central office then asks whether the customer wants to order an Internet code for designing a cover, and the customer dials number 1.

The automatic central office confirms the reception of the order, and after this the code number appears as a text message on the customer's phone, e.g. four numbers **** (1234).

The code number giving access to the design program could be for example the customer's phone number +4 numbers, i.e. +358 50 5224555 + 1234.

When the customer then orders the design program from the manufacturer through the Internet on his own PC, the data have been authenticated, providing better safety guarantee both for the customer and for the manufacturer than say, placing an open order through the Internet.

Should the phone be stolen or the bills not paid, the operator will be informed about this immediately.

Should the credit card be stolen or used without authorisation, the case is more difficult to check out, and the whole process will be more time consuming and onerous.

Consequently, there are two mutually independent ways of checking the customer's credit information, i.e. of ensuring his creditworthiness.

At the same time, the customer's safety increases, because the placing of an order requires a) a code and b) e.g. a credit card, and the order cannot be made using a credit card alone, but GSM (digital wireless) subscription is required as well.

The holder of the subscription and the holder of the credit card being the same person, it would be very unlikely that the mobile phone and the credit card were both stolen without the customer knowing.

The above-mentioned facts are valid at least when the merchandise is telecommunications and peripheral equipment, because the interest groups are the same, i.e. the operator, the phone seller, the phone manufacturer and the customer who uses the services of these.

Thus, when the customer orders a program, this is intended for him exclusively, because only the holder of the code is authorised to order the product he has designed.

At the same time it is possible to charge the customer two (2) dollars for access to a code which entitles the customer to receive for example a service, such as a design program.

The Internet-based order service does not take orders from outsiders who do not have a code number that has been obtained as described above.

Example:

GSM number	+ code	+ credit card number
+358 50 5224555	1234	1234567 99 30 USA
		FIN
Mrs Nelly Smith		Mrs Nelly Smith

Must be the same

Figure 4 is a schematic view of how the order is made by credit card. Customer A makes a phone call or sends a text message 31 by his mobile phone through switching exchange 32 to the operator 33. The operator 33 checks and confirms the customer's creditworthiness. The operator sends 34 the code to the customer, and the customer then contacts 35 by his data terminal the manufacturer's 36 program 37 and enters the code he has received. If the customer gives the number of the credit card by his mobile phone, this combination of phone number/operator and Visacard number also forms a given code sequence which ensures that the customer is creditworthy and the process can be continued. After this the customer receives the design program on his data terminal, where the design of the cover will be carried out. When the design of the cover has been completed, the order is sent to

the manufacturer, and the cover will be mailed to the customer within a few days. Figure 4 also shows the communications between the operator 33, the switching exchange 32 and the manufacturer with arrows. These communications may be various operations for checking creditworthiness.

In the examples presented above, Internet has been used, but it is obvious that also other existing or future interfaces known as such can be used.

Claims

1. A method for acquiring a mobile phone cover, through the Internet, **characterised** in that the customer himself (A) contacts the Internet program of the manufacturer (B) of mobile phone covers and designs the appearance, colours, logos, texts of the cover etc. on his data terminal, and then the customer transmits the data (12) concerning the appearance of the cover he has designed to the manufacturer's file, i.e. order service, the cover manufacturer's program chooses the suitable manufacturing method and the steps (C, D, E, F) for achieving the appearance of the cover, and sends the finished cover the customer has designed to the latter for example by cash on delivery.

2. A method as claimed in claim 1, **characterised** in that the design of both the cover and/or the coating and the manufacturing process are performed totally in digital form.

3. A method as claimed in claim 1 or 2, **characterised** in that the customer first chooses the basic surface of the cover, and then chooses the reprocessing methods of elements added on top or as an extension of this.

4. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out on a plastic cover using painting technology.

5. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using vacuum evaporation technology.

6. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using electro-catalytic coating technology.

7. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using sheet metal technology.

8. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using pressure-moulding and free-moulding technology.

9. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using spray-painting technology with high-precision resolution of even less than 0.1 mm.

10. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using laser engraving/dressing technology.

11. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using mechanical engraving/milling technology.

12. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is provided with one ore more pictures using hologram technology, either directly on the cover or on an "in mould" -film.

13. A method as claimed in any of the preceding claims, **characterised** in that the appearance of the cover is carried out using "in mould" -film technology, wherein the picture is produced by a laser printer or a laser press.

14. A method as claimed in any of the preceding claims, **characterised** in that additions are made to the appearance of the cover by adding external parts.

15. A method as claimed in any of the preceding claims, **characterised** in that the cover is coated with leather, for example such that leather shaped to the desired form is fitted in the mould and injection moulding is performed, thus producing a plastic cover with leather coating.

16. A method as claimed in claim 15, **characterised** in that the leather cover is a separate part that is attached to the mobile phone.

17. A method as claimed in any of the preceding claims, in which the cover order is made by credit card, **characterised** in that the customer calls/sends a text message (31) by his mobile phone through a switching exchange (32) to the mobile phone operator (33), who checks out and confirms the customer's creditworthiness towards the operator, the operator sends (34) a code to the customer, who contacts by his data terminal (35) the manufacturer's (36) program (37) and enters the code he received, then the customer receives the cover design program (37) and is able to design the appearance of the cover, and the manufacturer (36) manufactures the cover and mails it to the customer, and the charge is paid by credit card.

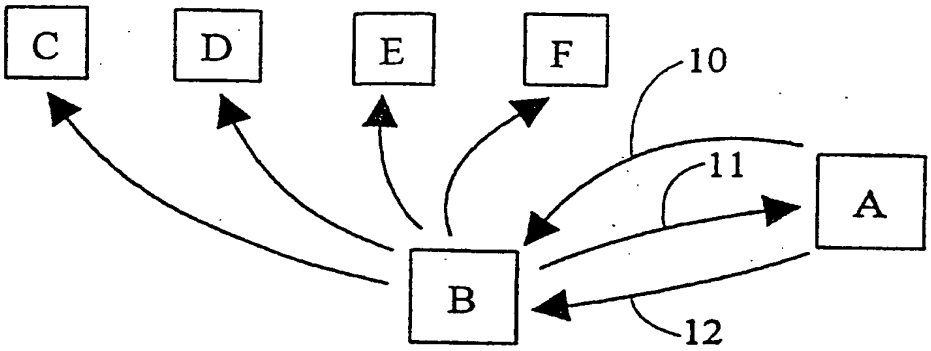


Fig. 1

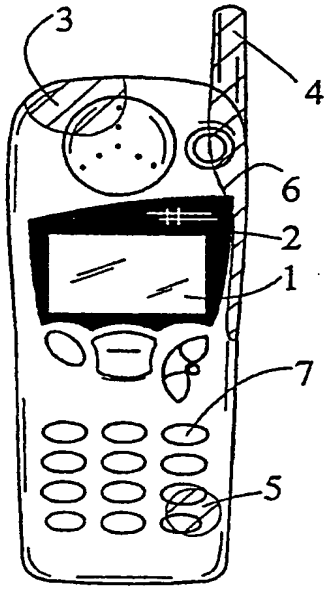


Fig. 2

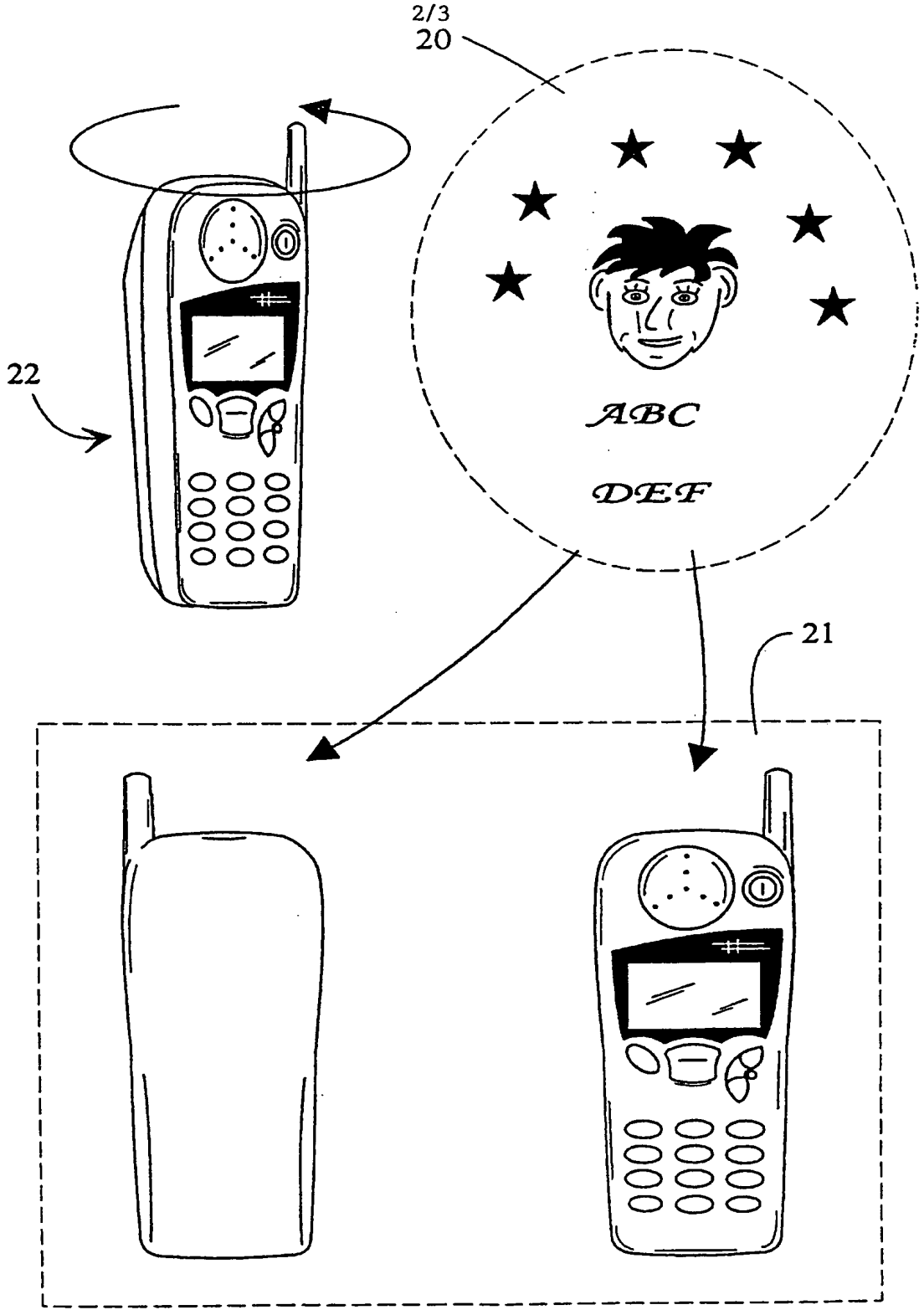


Fig. 3

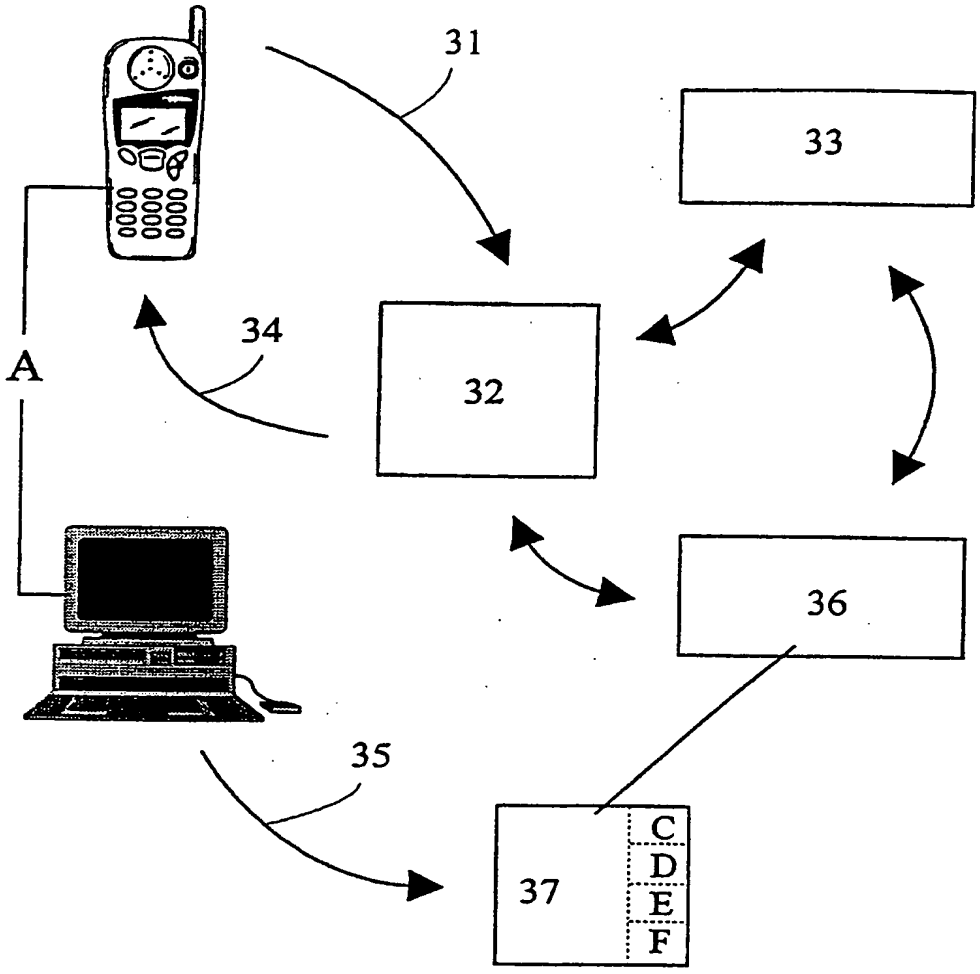


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 00/00836

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/60
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9852144 A1 (METROLOGIC INSTRUMENTS, INC.), 19 November 1998 (19.11.98), the whole document --	1-17
A	US 5570292 A (ABRAHAM ET AL.), 29 October 1996 (29.10.96), the whole document --	1-17
A	EP 0801355 A2 (BAKER HUGHES INCORPORATED), 15 October 1997 (15.10.97), the whole document --	1-17
A	WO 9815908 A1 (CITIZEN WATCH CO., LTD.), 16 April 1998 (16.04.98), the whole document --	1-17

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 January 2001	15 -01- 2001
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Jesper Bergstrand /OGU Telephone No. +46 8 782 25 00

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI00/00836

Box I **Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 1-17
because they relate to subject matter not required to be searched by this Authority, namely:
. . . / . . .

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II **Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI00/00836

A method of doing business.
According to Rule 39 no search is required since the subject matter of the claimed invention concerns a method of doing business.
Despite this fact a search has been performed and thus a search report has been established.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/FI 00/00836

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9852144 A1	19/11/98	AU 7570098 A	08/12/98
		CN 1255217 T	31/05/00
		EP 0983570 A	08/03/00
		GB 2341251 A	08/03/00
		GB 9926738 D	00/00/00
		US 6085978 A	11/07/00
US 5570292 A	29/10/96	CA 2142484 A	15/08/95
EP 0801355 A2	15/10/97	JP 10063712 A	06/03/98
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		EP 1020807 A	19/07/00